


BROADBAND EXPANSION GRANT APPLICATION

For Fiscal Year 2022

Primary Applicant (Name and Address): CCI Systems, Inc. DBA Astrea 105 Kent St. Iron Mountain, MI 49801	Applications MUST be UPLOADED to ERF via the Commission's website, http://psc.wi.gov/apps35/ERF_upload/content/mymenu.aspx . Refer to section 2.3 for detailed instructions. Applications are due and MUST be uploaded to ERF no later than: March 17, 2022 at 4:00pm (16:00) Central Time. Late applications will not be accepted.		
	Contact for further information: PSCStatebroadbandoffice@wisconsin.gov		
	Date: March 17 th , 2022		
<p>The Public Service Commission of Wisconsin is seeking applications for Broadband Expansion Grants. The Commission may award one or more grants during Fiscal Year 2022 to public and private entities that meet the eligibility requirements set forth in Wis. Stat. § 196.504. This grant round will be funded with bond proceeds authorized by the Wisconsin Building Commission pursuant to Wis. Stat. § 13.48(30). As such, successful applicants are subject to the requirements of Wis. Stat. § 13.48(30). Successful applicants will demonstrate a clear and achievable plan to improve broadband communications services in one or more underserved areas in the State.</p>			
<p>Applicant Certification: In signing this application, the undersigned verifies under penalty of perjury that the Applicant and its employees and agents have not, either directly or indirectly, entered into any agreement or participated in any collusion or otherwise taken any action in restraint of free competition with respect to this application; that no attempt has been made to induce any other person or firm to submit or not to submit an application; that this application has been independently arrived at without collusion with any other proposer, competitor or potential competitor; that this application has not been knowingly disclosed prior to the opening of applications to any other applicant or competitor; that all of the responses and representations of Applicant in this application are true and correct to the best of the undersigned's knowledge, information, and belief; and that Applicant agrees to, accepts, and will comply with all of the terms and conditions respecting this application and any award of a broadband expansion grant as may be established in a grant award Agreement.</p>			
Name of Authorized Representative (Type or Print) R. Cory Heigl	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;"> Title Vice President </td> <td style="width: 50%; padding: 5px;"> Phone () 906-776-2634 </td> </tr> </table>	Title Vice President	Phone () 906-776-2634
Title Vice President	Phone () 906-776-2634		
Signature of Authorized Representative 	Date 3/17/2022		

SUMMARY OF GRANT APPLICATION

Primary Applicant Name CCI Systems, Inc. DBA Astrea	Amount of Broadband Grant Request (round to nearest dollar) \$997,710
Federal Employer Identification No. 38-2356585	Amount of Matching Funds Pledged (round to nearest dollar) \$249,426
Contact Name and Title Cory Heigl – Vice President	Total Cost of Proposed Project (round to nearest dollar) \$1,247,136
Telephone Number 906-776-2634	Project Name Town of Niagara
E-mail Address(es) cory.heigl@astreaconnect.com	Type of Proposed Broadband Service (FTTH, Cable, DSL, etc.) FTTH
Grant Manager, if different than Primary Applicant N/A	Type of Proposed Project (Last-mile, Middle-Mile, backbone, other) N/A
Grant Manager Contact Name N/A	Grant Manager Email Address and Telephone Number N/A
If the application proposes a public-private partnership, list the names, addresses, and FEINs of the partner companies or organizations Town of Niagara – Marinette County Mark DeClark – Chair W6889 US Hwy 8, Niagara, WI 54151	
Brief Project Description (2 sentences) Construct 25.0 miles of Fiber infrastructure to provide (FTTH) to provide gigabit services to 247 new addresses.	
Maximum Proposed Download Transmission Speed 1000 Mbps	Maximum Proposed Upload Transmission Speed 1000 Mbps
Minimum Proposed Download Speed to Customer Location 50 Mbps	Minimum Proposed Upload Transmission Speed to Customer Location 50 Mbps
County or Counties served by this project Marinette County	Community or Communities served by this project Town Of Niagara

List of the broadband service providers, if any, currently serving the area the applicant proposes to serve	
NSight	
Does proposed project serve an <u>unserved</u> area of the State, as defined in Section 1.4 of the application instruction? (yes/no)	Is the Applicant certified as a Broadband Forward! Community or Telecommuter Forward! Community, or does the grant project propose to serve a Broadband Forward! Community or Telecommuter Forward! Community? (yes/no)
YES	NO
For last mile projects or component the expected number of Business Locations that will have access to the improved broadband service (i.e., total business locations passed or with new service access). 12	For last mile projects or components the expected number of Residential Locations that will have access to the improved broadband service (i.e., total residential locations passed or with new service access). 235
Of the improved business locations, how many locations are <i>unserved</i> ? None	Of the improved residential locations, how many are <i>unserved</i> ? None
For providers that are eligible telecommunications carriers will the proposed broadband service be available to Lifeline customers? (yes/no) N/A	Are there any programs available for low-income households to access low-cost service or discounts? (yes/no) YES
Is the internet service provider currently participating in the Emergency Broadband Benefit Program? (yes/no) YES	Is the internet service provider currently participating in the Department of Public Instruction and CESA purchasing's Digital Learning Bridge? (yes/no) YES
Did the internet service provider participate in the Public Service Commission's voluntary Broadband Coverage Data Collection in 2021? (yes/no) YES	

FY22 Broadband Expansion Grant Application

Budget & Income Summary



Please complete this form using Microsoft Excel. A PDF copy must be attached to your application as page four. In addition, this form must also be uploaded to ERF in Excel format.

Grant Summary

Grant Applicant:	Project:
CCI Sysrtems, Inc. d/b/a Astrea Connect	Town of Niagara

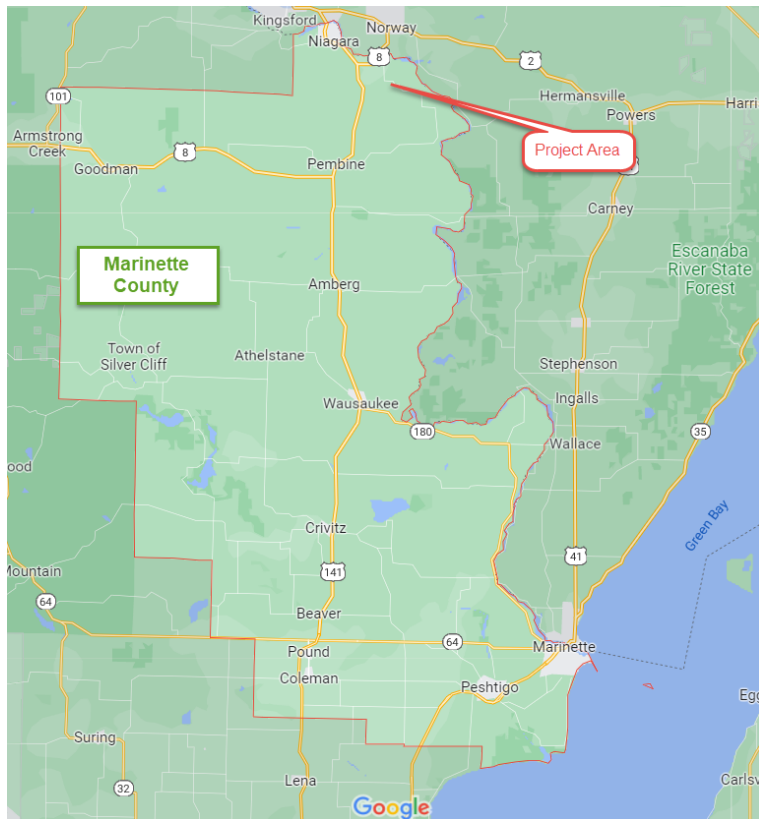
Budget

Line:	Description / Category:	Grant Funds:	Match:	Total:
1	Contractual, Consultant Fees	\$ 590,103.00	\$ 147,525.00	\$ 737,628.00
2	Equipment	\$ 242,007.00	\$ 60,501.00	\$ 302,508.00
3	Supplies			\$ -
4	Labor (Salary, Fringe)	\$ 118,000.00	\$ 29,500.00	\$ 147,500.00
5	Permitting, Licensing Fees	\$ 47,600.00	\$ 11,900.00	\$ 59,500.00
6	Travel			\$ -
7	Other			\$ -
Total:		\$ 997,710.00	\$ 249,426.00	\$ 1,247,136.00
		20.0% match requested		

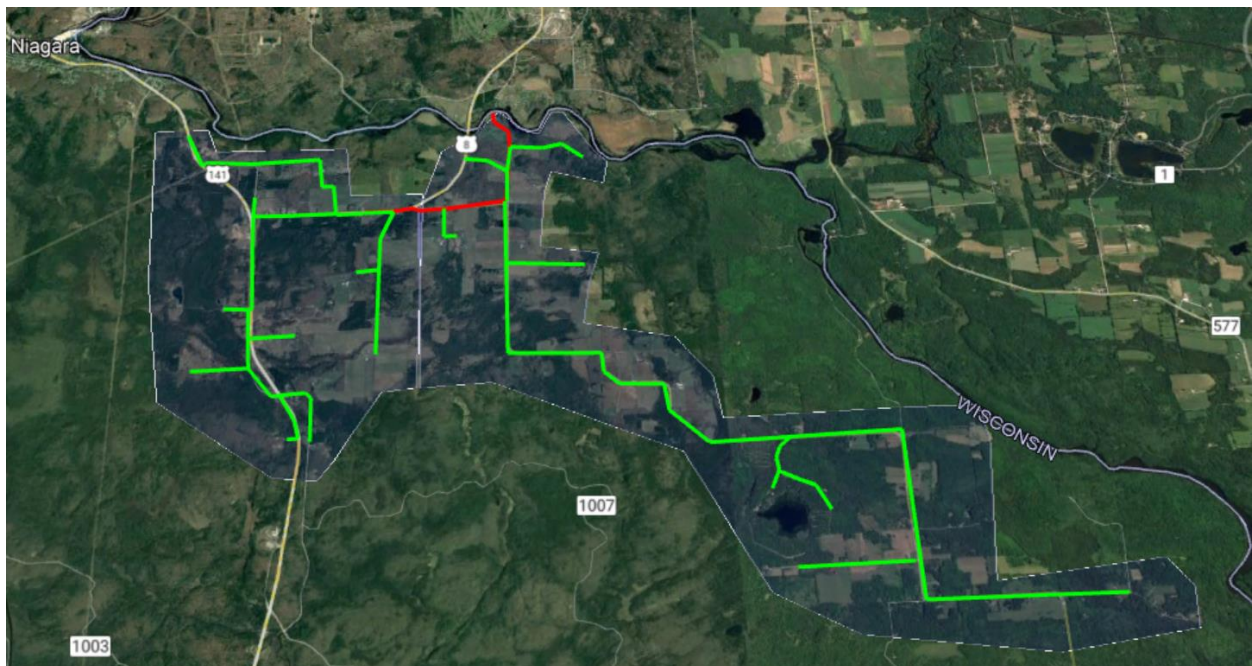
Pledged Contributions

#:	Entity:	Entity Type:	Pledge Type:	Pledge:
1	CCI Systems, Inc	Applicant	Cash	\$ 249,426.00
2				
3				
4				
5				
6				
7				
8				
9				
10				
Total:				\$ 249,426.00

Marinette County



Town of Niagara





Wisconsin PSC Broadband Expansion Grant Program Application

Submission: March 17th, 2022

3.2 Mandatory Application Requirements

3.2.1 Applicant identification and contact information

3.2.1.a. The name of the entity applying for the grant, and the mailing address, telephone number and email address of one or more contact persons representing the entity.

Contact Name/Title: Cory Heigl, Vice President
Organization: CCI Systems, d.b.a. Astrea Connect
Identity: Private (Telecommunications Company)
Mailing Address: 105 Kent St., Iron Mountain, MI 49801
Telephone: (906) 282-3682 – Mobile; (906) 776-2634 - Office
Email: cory.heigl@astreaconnect.com

3.2.1.b. If the application proposes a public-private partnership, include the identity and contact information for all application partners.

Contact Name/Title: Mark DeClark
Organization: Town of Niagara
Identity: Town Chair
Mailing Address: N22380 Hansen Rd. Niagara, WI 54151
Telephone: (715) 251-1545
Email: townni@borderlandnet.net

3.2.1.c. The application must show that the applicant is an organization, a telecommunications utility, or a city, village, town, or county that has established a legal partnership or joint venture arrangement with an otherwise qualified organization or telecommunications utility, and as such meets the eligibility requirements set forth in Wis. Stat. s. 196.504(1).

CCI Systems (CCI), d.b.a. Astrea Connect, is an “eligible applicant” as defined in Wis. Stat. s. 196.504(1) because it is a for-profit telecommunications utility.

3.2.2. Description of the project

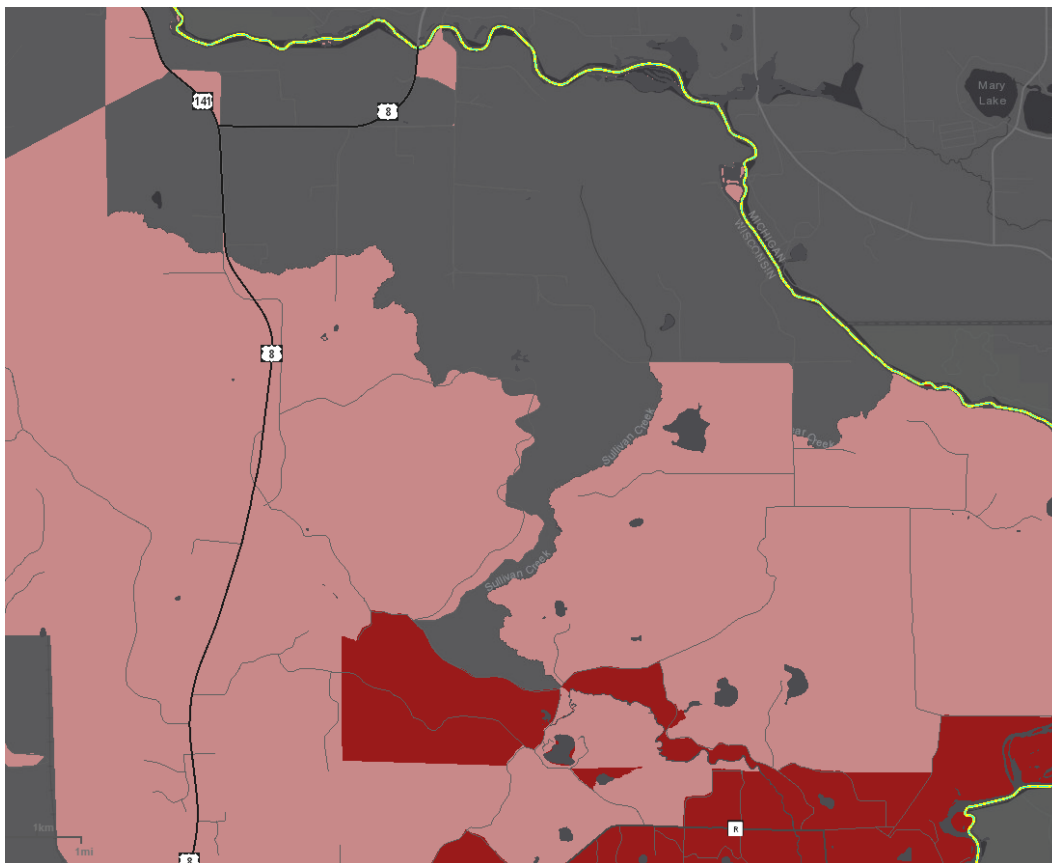
Project Description: The project intends to construct 25.00 miles of Fiber to the Home (FTTH) infrastructure to serve 247 unserved residential addresses.

3.2.2.a. A map and description of the area of the state that will be affected by the proposed project

See Page 5 & 6

3.2.2.b. If the project area lies within a census block designated as served, provide additional documentation to demonstrate the actual broadband service that is available in the proposed area of service.

According to current PSC Mapping data the project area is has a mix of served and underserved.



3.2.2.c. An explanation of how the proposed project will increase broadband access in the project area.:

The proposed project allows CCI to provide wired broadband service to approximately 247 addresses within the project footprint.

There are 12 traditional business locations, however we have also identified self-employed folks and a few in-home businesses within the proposed project area, showing a continued trend that work-from-home is on the rise.

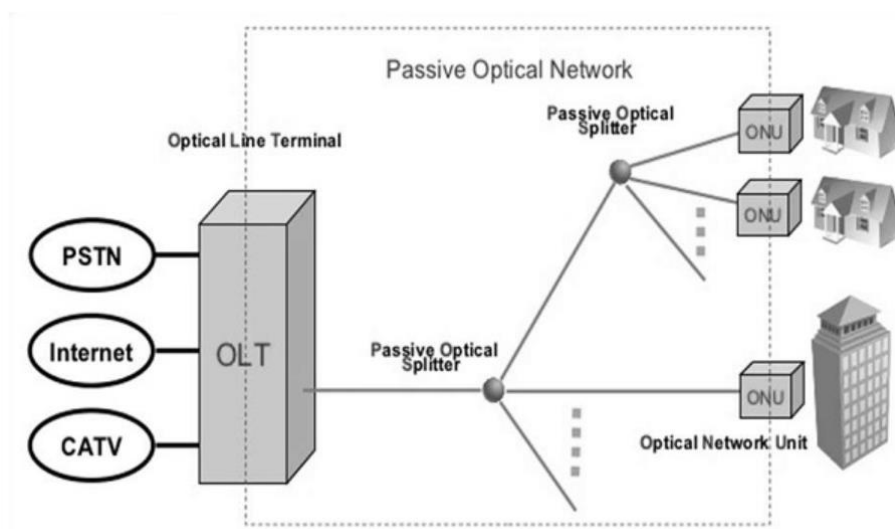
Broadband services will be offered up to 1000 x 1000 Mbps. (Gigabit)

3.2.2.d. A statement whether the proposed project is targeting the “last mile,” “middle mile,” or backbone portion of the broadband infrastructure.

Last Mile: The extension is 100% last mile to bring broadband access to unserved and underserved residents.

3.2.2.e. A description of the broadband service to be provided, including estimated download and upload speeds, whether the speed is based on dedicated or shared bandwidth, and the technology will be used. This statement may be illustrated by a map or schematic diagram, as appropriate

The technology will be FTTH (Fiber to the home) and will use GPON (Gigabit Passive Optical Network) which will be shared bandwidth. Where we have deployed this architecture in other areas of the state, we typically offer 1000 x 1000 mbps, although capable of more upload speeds.



3.2.2.g. A schedule by which the applicant intends to complete the components of the proposed project.

Key Dates

- Notification of Award followed by execution of Award Agreement: Assumes *June of 2022*
- Project completion is anticipated approximately 24 months (see Timeline below):

	FYE June 30th, 2022		FYE June 30th 2023				FYE June 30th, 2024			
Project Components (X = Complete)	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Execution of the PSC Grant Agreement		X								
Engineering and Design		X	X							
Permitting		X	X	X	X					
Fiber Construction			X	X	X	X	X	X		
Splicing and Testing						X	X	X	X	
Available to Customers						X	X	X	X	X

3.2.3 Itemized Budget (all amounts should be rounded to nearest dollar).

3.2.3.a Estimates or Quotes

See Appendix

3.2.3.b The application must show that the grant, if awarded, will not subsidize the expenses of a telecommunications provider or the monthly bills of telecommunications customers. For purposes of this grant program, subsidy means a contribution to the operating costs, including profit, of the telecommunications provider.

The grant, if awarded, will not subsidize the expenses of CCI Systems or any other telecommunications provider, nor will it subsidize the monthly bills of telecommunications customers. For purposes of this grant program, a “subsidy” is defined as “contribution to the operating costs, including profit, of the telecommunications provider.”

3.2.3.c The application must show that the grant funds requested will be used for the sole purpose of constructing broadband infrastructure in the underserved areas covered by the application.

Requested grant funds will be used for the sole purpose of constructing broadband infrastructure in the underserved areas described in our application and include:

- Project planning
- Obtaining construction permits
- Construction and Materials associated of the last mile infrastructure
- Modifications to core for new service group distribution.
- Testing of the broadband system

3.2.4. Priority Factors Supporting the Application

3.2.4.a. Matching Funds. A description of the matching funds the applicant will invest in the proposed project, if any.

See *Funding Statement* for matching funds

See *Appendix* for support letters

3.2.4.b. Public Private Partnerships.

- **Town of Niagara**

<See appendix>

3.2.4.c. Existing Broadband Service

- Nsight is the only wireline provider in the project area.
Nsight provides no coverage or network map on their website. It does, however, allow prospective customers to look up coverage for their home address.

The PSC Broadband map shows depicts shows speeds between of 25x3 MB in the underserved areas.

- According to the PSC Map, T-Mobile has Fixed Wireless Availability in some of the area
- AT&T, Cellcom & Verizon are the mobile wireless providers covering some of the project area. Coverage by provider varies. Advertised speeds vary, and some include data-caps.
 - All available mapping tools show data coverage.

3.2.4.d. Project Impact

- **Residential Customer Impact:** 235 residential addresses in the project vicinity.
Residential Take-Rate: Based on statistical evidence in surveying residents, we believe that approximately 170 residential addresses will subscribe to Astrea's data service.
- **Business Customers:** There are 12 traditional business address exist within the project area. Having affordable high-speed internet can allow for work-from-home or in home businesses to further bolster economic growth.
- Based on our community outreach, we expect to have 175 connected users within 2 years of availability.
- Consumers will have options of speeds from 50x50 mbps to 1000x1000 mbps.
- Astrea supports a variety of discounting programs to assist in affordability.
- Astrea has a full marketing/community outreach team that will continually engage with local leadership to support adoption. This will include education and digital literacy events and programs supporting reduced or free installation. Astrea is a no-contract company.

3.2.4.e. Scalability

- **Number of users.** CCI will provide 100% access to the existing addresses within the map (see 3.2.2.a). There are many parcels of land not yet developed near and within the project vicinity that will have service available to them. Without significant wire-line extensions, the proposed architecture could add 50 or more address.
- **The number of network nodes.** With proper configuration, and a small investment, an additional network node could be added, with little expense, to effectively double users and per home capacity.
- **The number of services provided.** Astrea, in addition to Data service will offer the following:
 - Voice over Internet Protocol (VoIP).
 - Managed Wi-Fi and Security Products
- **The geographic area served by the project.** With existing technology and wire-line extensions, the proposed architecture could add 50 or more address near the current project vicinity.

3.2.4.f. Economic Development

With the areas proximity to larger nearby communities' there is a slow trickle of development, increasing property values. Broadband access will entice investment in the area to improve the overall tax base.

The effects of Seasonality

The Project areas has stronger seasonal element with lakes and the river in the vicinity. Even outside of the lake areas directly, seasonality still exists such as summer cabins or "hunting camps" as secondary homes. The PSC may consider these tourists or transients. However, due to Covid-19, research shows a powerful and suspected long-term trend that Work from Home, will drive people to occupy these seasonal areas longer or permanently.

Research by UWEX, suggests that nearly 53% of the seasonal residents would stay longer if they had broadband access.

Reference:

https://www.slideshare.net/WI_Broadband/economic-impact-of-broadband-second-homes-high-speed-bits

We suggest that approximately 30 homes are seasonal in the Project vicinity, and that would spend an average of 37 days longer, which would drive an additional \$50,000 into the local economy on an annual basis. This study is likely undermined with current trends that have risen since the beginning of the pandemic.

Expanded broadband access will entice seasonal users to not only stay longer, but potentially stay full time. This will have a trickle effect, by creating demand for retail growth and attraction of new business.

3.2.4.g. Affect upon broadband service to adjacent areas. A description of whether the proposed project will or will not impair the ability of a broadband service provider or competing broadband service provider to extend broadband service to areas adjacent to the proposed project area.

This project will assist our efforts in continued investment and innovation within the project area and the surrounding areas. As far as impairing the ability of another service provider, we believe that competition is a critical element in our economy. It is difficult to suggest that our project will (or will not) impair any service provider from continuing to bring solutions to areas in need.

3.2.5 Other Information supporting the application

3.2.5.a A description of the applicant's history or experience with constructing Broadband communication facilities in the state and elsewhere.

Astrea's mission is to provide innovative communication technology to rural communities.



CCI Systems (d.b.a. Astrea Connect) provides communication services in over 60 different communities in Northern Wisconsin and Michigan's Upper Peninsula. We operate nearly 1800 miles of fiber backbone in these areas and have an additional 750 miles of fiber or coaxial distribution network. Our service offerings are typical of today's Cable TV companies with Digital Video, VoIP, and High-Speed Cable Modems. Today, Astrea Connect serves approximately 13,700 homes and business with one or more products.

We celebrate the fact that we are a small, local telecommunication provider. Our continued expansion and investment in our broadband infrastructure are 100% focused in rural areas.

CCI Systems has been designing, building, and upgrading Communication networks across the nation for over 50 years. At any time, CCI has ongoing projects in 25-30 states.

CCI partners with more than 50 technology leaders throughout the industry. CCI holds numerous certifications, including Cisco SP Signature Partner and Cisco Authorized Service Provider Video Partner (both invitation-only). CCI professionals continually train and pursue additional certifications to maintain proficiency with that latest state-of-the-art technology. ‘

CCI's Field and Design Service:

- Mapping and Permitting
- Drafting and Design
- FTTx – Fiber to the home

CCI's Network Solutions Group:

- Optical and IP Networks
- Security Solutions
- SD-WAN
- Data Center
- Technical Field Services
- Fiber Splicing and Testing

Guide Star (Another CCI Brand)

- Managed Security Services
- Managed IT support services
- NOC (Network Operations Center)
- Call center & customer care
- Language Services
- Remote Technical Support and Consulting
- Hospitality call center support

CCI's Construction Services:

- Aerial Cable Placement
- Underground Cable Placement

3.2.5.b A description of how the proposed project will or will not duplicate existing broadband infrastructure.

Existing infrastructure is primarily a DSL technology provided by Nsight, where the available speed can greatly by location. There is no other wireline providers. Fixed wireless provided by T-Mobile in some areas.

3.2.5.c. A description of an applicant's financial ability to undertake the proposed broadband construction project.

CCI Systems has been in business for 65 years. CCI's business unit "Astrea" started in 2007. CCI is 100% employee-owned and debt free. CCI has over 1000 employees providing goods and services to hundreds of ISP's throughout the country. With a strong balance sheet, and risk-adverse ownership structure, CCI has a access to sizeable investment capital to fulfill growth throughout it's portfolio. CCI has been able to routinely invest in Astrea each year to achieve exceptional growth.

3.2.5.f. A description of how the proposed project will affect the ability of individuals to access health care services from home, including any impact upon the costs of those services.

With high speed Broadband, residents of the targeted area, will be able to **reliably** use telemedicine type services. The adoption of such services is on the rise, especially in rural America. The nearest Hospital is approximately a 20-30 minute drive.

3.2.5.g A description of how the proposed project will affect the ability of students to access educational opportunities from home.

Students who live in the project area will increase their access to online learning platforms. With the adoption of 1 to 1 technology initiatives, children struggle in underserved areas to complete schoolwork outside of the classroom. As rural schools are forced to share online learning by offering classes in collaboration with nearby school districts, especially AR type curricula that have high value and low physical attendance.

3.2.5.h A description of actions taken by a city, village, town, or county in support of the grant application that have not been discussed in the context of a public private partnership above.

See Appendix – Support Letters

- **Town of Niagara**

3.2.5.i. Letters and Messages

See Appendix

3.2.5.j. Other equitable factors

Additional public interest factors cited in Wis. Stat. § 196.03(6) that will be advanced by this applicant's project are described in support letters from residents of the target affected area.

These public interest factors include:

- Improved pricing structures with better consumer service and competition for affordability [§196.03(6)(a)]
 - The promotion of greater consumer choices for service with additional price points and speeds with added CCI service [§196.03(6)(b)]
 - Enhanced quality of life for the public, High speed access to the growing telemedicine culture. Children require proper connectivity to not only assist with educational needs, however contemporary on-line portions of schoolwork through 1 to 1 initiative, is a national trend. Children residing in the project area will have access to services that allow them to thrive.
 - [§196.03(6)(c)] Promotion of efficiency and productivity [§196.03(6)(f)]
 - Promotes universal service by providing speeds that are up to 40 times faster than defined by the FCC's current definition of broadband of 25 x 3 Mbps or 100 times faster than CAF II minimum of 10 x 1. [§196.03(6)(d)]
 - Promotes robust economic development, attracts new businesses, increases the tax base, improves property values, and allows residents to conduct work from their seasonal summer homes year-round. [§196.03(6)(e)]
 - Promotes telecommunications services in geographical areas that are rural and experience disparities due to having no broadband connectivity, and that include diverse income populations [§196.03(6)(g)]
- ***Technical support and training materials that the applicant intends to provide.***
- Business: 24/7 technical support with a trained engineer. Guaranteed onsite within 24 hours
 - Residential: 24/7 support number
 - Astrea Diagnose & Astrea Juice (User technology tools)
 - Blog posts with tips and tricks on using connected services.
 - Work with Microsoft to promote digital literacy <https://astreaconnect.com/digital-literacy/>
 - Worked with 4H/Tech Change Makers branches in Wisconsin and Upper Michigan to partner on community efforts to enhance broadband connectivity education.
 - Astrea conducted training sessions with 4H student leaders to educate them on the different internet connectivity options available and how much speed a household need

- Created “The Definitive Guide: Your Rural Broadband Connection” that was distributed to 4H groups as an education resource to be distributed within their communities.
- ***Information that the applicant intends to use to promote better broadband adoption and use.***
 - Being active within the community and creating brand awareness in communities we serve.
 - Speed guides to give potential customers a better understanding of what package would be best for them and their needs
 - Targeted advertisements to specific areas (digital, outdoor)
 - Hosted local digital literacy events to promote new users to adopt a safe and secure digital lifestyle.
- ***A description of a program or outreach to provide assistance to individuals of low income.***
 - Participation in the FCC’s EBB program
 - Participation in the new FCC’s new ACP program.
 - DPI Partnership - <https://astreaconnect.com/astrea-dpi/>
 - ACA K-12 Bridge to Broadband
 - Free Public Wi-Fi locations in communities we serve.
<https://astreaconnect.com/astrea-offers-free-wi-fi-locations-as-part-of-covid-19-response/>
 - School distance learning program– extended offering of free service months to ensure connectivity of students and teachers during virtual schooling. <https://go.astreaconnect.com/astreadistance>

Appendix

- **Partner Support**
 - **Town of Niagara**
- **Detailed Budget**

Mark DeClark, Chairman
Ronald Neuens, Supervisor
David Sanicki, Supervisor

Dawn Johnson, Clerk
Debbie Emond, Treasurer
Bob Grandaw, Zoning Administrator

Town of Niagara
W6889 US Hwy 8
Mailing address: N22380 Hansen Rd
Niagara, WI 54151
Phone: (715) 251-1545
E-mail: townni@borderlandnet.net

March 15, 2022

R. Cory Heigl
Astrea-Vice President and General Manager
105 Kent St.
Iron Mountain, MI 49801

Dear Mr. Heigl

The Niagara Town Board supports broadband expansion through private enterprise, grants, and other non-taxpayer funded opportunities as they may exist to better serve the Town of Niagara residents and businesses.

We submit this letter of support to help facilitate the development of affordable and reliable wireless broad band systems and to encourage the Public Service Commission to continue funding awards in this area. This letter is sent in support of your continued efforts in applying for the Broadband Expansion Grant program to install, expand, or enhance high speed internet throughout the Town of Niagara.

We appreciate the commitment of the Public Service Commission in fostering partnerships between the public and private sectors to accomplish great things in a community. We thank you for considering grant applications that will better serve the Town of Niagara.

Sincerely,



Mark DeClark, chairman
Town of Niagara



FTTH Calculator	Quantities
Total Route Miles	25.000
Aerial Route Miles	16.25
Underground Route Miles	8.75
Install New Strand	16.28
Make Ready Miles	0.00
UG Plow Percentage	60%
UG Trench Percentage	5%
UG Bore Percentage	35%
Estimated % of Rock Encountered UG Route	15%
Passings	247
Passings Per Mile	10
Total Cost Engineering	\$127,500.00
Cost Per Mile Engineering	\$5,100.00
Total Cost OSP Labor	\$791,129.60
Total Cost OSP Material	\$302,508.98
Total Cost OSP Labor and Material	\$1,093,638.58
Cost Per Mile Labor and Material	\$43,745.54
Cost Per Passing	\$5,049.14
Total Cost	\$1,247,138.58

ESTIMATED LABOR QUANTITIES & COSTS	QTY	UNIT	COST	SUBTOTAL
Install Strand - Includes Bonding, Grounding, Installing Down Guys, Incidental Tree Trimming	86,000	FT	\$1.40	\$120,400.00
Install Anchors Included w/ strand pricing	0	EA	\$100.00	\$0.00
Overlash/Lash 1 Fiber Cable	86,000	FT	\$0.90	\$77,400.00
Overlash/Lash MST Cable Additional While Installing Mainline	27,000	FT	\$0.45	\$12,150.00
Plow 1 (1.25") Conduit For Trunk/Distribution Fiber Cable 24" Depth/Install Peds/Grounding	27,600	FT	\$3.00	\$82,800.00
Trench 1 (1.25") Conduit For Trunk/Distribution Cable 36" Depth/Install Peds/Grounding	2,300	FT	\$12.26	\$28,198.00
Directional Bore 1 (1.25") Conduit For Trunk/Distributon Cable 36" Depth/Install Peds/Grounding	16,100	FT	\$10.50	\$169,050.00
Install 1 Additional Conduit (1.25") Same Time As Initial Conduit	7000	FT	\$1.00	\$7,000.00
Rock Adder For Trench - Rock Saw	4,140	FT	\$26.75	\$110,745.00
Rock Adder For Bore - Cobble Type Rock (10%)	1,610	FT	\$18.86	\$30,364.60
Solid Rock Adder - If Encountered Would Need to Consider Setting Poles	0	FT	\$65.00	\$0.00
Pull Trunk Fiber Into Conduit	38,500	FT	\$0.75	\$28,875.00
Pull MST Into Conduit	16,775	FT	\$0.68	\$11,407.00
Install Test Stations For Fiber	20	EA	\$75.00	\$1,500.00
Install Warning Posts For Fiber	20	EA	\$50.00	\$1,000.00
Intall Pedestal Average Price Various Sizes	30	EA	\$50.00	\$1,500.00
Install Pull/Storage Vault Average Price	20	EA	\$350.00	\$7,000.00
Install Splice Enclosure (72 locations + 8 for Butts)	80	EA	\$250.00	\$20,000.00
Install Cabinet Active and Passive Average Cost	2	EA	\$750.00	\$1,500.00
Fusion Splice At Splice Enclosures/Cabinets Includes OTDR Testing Average of Tier Pricing	500	EA	\$41.48	\$20,740.00
Aerial Make Ready Estimate (Pole Changeouts)	17	EA	\$3,500.00	\$59,500.00
Pole Engineering	320	EA	\$125.00	\$40,000.00
Engineering Underground - Includes Walkout, Design. and Permitting	8.750	MI	\$3,500.00	\$30,625.00
Engineering Aerial - Includes Walkout, Design. Pole Profiling and Permitting	16.25	MI	\$3,500.00	\$56,875.00
TOTAL LABOR COST				\$918,629.60

ESTIMATED MATERIAL QUANTITIES & COSTS	QTY	UNIT	COST	SUBTOTAL
Cabinets/Splitters	2	EA	\$2,263.00	\$4,526.00
OLT and CO Equipment (Per Home Passed)	1	EA	\$26,000.00	\$26,000.00
MST 4 Port 50'	66	EA	\$175.00	\$11,550.00
MST 4 Port 500'	8	EA	\$340.00	\$2,720.00
MST 4 Port 750'	19	EA	\$450.00	\$8,550.00
MST 4 Port 1000'	17	EA	\$575.00	\$9,775.00
MST 4 Port 1250	17	EA	\$700.00	\$11,900.00
MST 4 Port 1500	8	EA	\$825.00	\$6,600.00
MST 4 Port 2000'	2	EA	\$1,100.00	\$2,200.00
MST 8 Port 750'	1	EA	\$675.00	\$675.00
MST 8 Port 1000'	0	EA	\$600.00	\$0.00
Splice Enclosure	80	EA	\$378.27	\$30,261.60
24 Count Fiber	52000	FT	\$0.40	\$20,800.00
48 Count Fiber	26000	FT	\$0.45	\$11,700.00
96 Count Fiber	46000	FT	\$0.72	\$33,120.00
144 Count Fiber	13000	FT	\$1.08	\$14,040.00
Conduit 1 1/4" With Couplers and Pull Tape	60,000	EA	\$0.80	\$48,000.00
Strand and Hardware	86,000	FT	\$0.40	\$34,400.00
Lashing Materials	86,000	FT	\$0.13	\$11,180.00
Misc Hardware (fiber tags, straps&spacers, risers, etc.)	86,000	FT	\$0.03	\$2,580.00
Warning Posts	20	EA	\$22.00	\$440.00
Test Stations	20	EA	\$75.00	\$1,500.00
Vaults Average of Various Sizes	20	EA	\$800.00	\$16,000.00
Drop Vaults	5	EA	\$600.00	\$3,000.00
Pedestals TV 104 or Similar	30	EA	\$316.00	\$9,480.00
Fusion Splice Sleeves	8,000	EA	\$0.53	\$4,240.00
TOTAL MATERIAL COST INCLUDES 9% TAX & FREIGHT				\$328,508.98